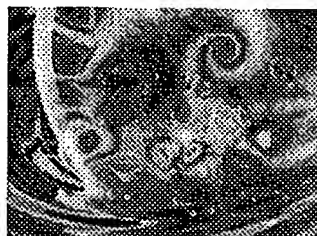




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## Online Catalog - GIBCO™ Cell Culture



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- ✦ [Molecular Probes](#)
- ✦ [Drug Discovery Solutions](#)
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Better research begins with better cell culture.

And better cell culture begins with innovative GIBCO™ products optimized for today's demanding applications.

Count on us to develop new ways to help you be more efficient, productive, and successful.

[BSE News Update](#)

### GIBCO™ Brand Cell Culture

[Animal Sera](#)  
[Balanced Salt Solutions](#)  
[Basal Media](#)  
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### Specialty Media Products

[Advanced D-MEM and Advanced MEM](#)  
[GlutaMAX™ Media](#)  
[Serum-Free Media and Pre-adapted Cells](#)



United States

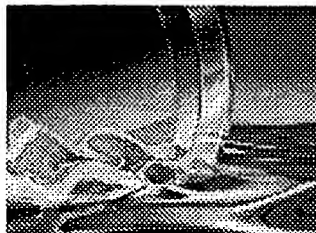
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- [Basal Media Eagle \(BME\)](#)
- [BGJb Medium](#)
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- [CMRL Medium](#)
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- [Cryopreservation Medium](#)
- [Dulbecco's Modified Eagle Media \(D-MEM\)](#)
- [E-Z Hold™ Plastic Bottles](#)
- [F-10 Nutrient Mixtures](#)
- [F-12 Nutrient Mixtures](#)
- [Glasgow Minimum Essential Media](#)
- [Grace's Insect Cell Culture Media](#)
- [Improved MEM Zn++ Option \(Richter's Modification\)](#)
- [IPL-41 Insect Media](#)
- [Iscove's Modified Dulbecco's Media](#)
- [Leibovitz's L-15 Media](#)
- [McCoy's 5A Media \(modified\)](#)
- [MCDB 131 Medium](#)
- [Media 199](#)
- [Medium NCTC-109](#)
- [Minimum Essential Media \(MEM\)](#)
- [Modified Eagle Medium \(MEM\)](#)
- [Opti-MEM® 1 Reduced Serum Media](#)
- [RPMI Media 1640](#)
- [Schneider's Drosophila Medium](#)
- [Stak Pack™ Accessories](#)
- [Waymouth's MB 752/1 Media](#)
- [Williams Media E](#)

## Cell Culture Products Overview

### Description:

*This information applies to all of the Cell Culture product chapters, with the exception of Animal Sera.*

### Classifications

The products listed in the following chapters are "for research use only", except where otherwise denoted. These products are not for clinical use. The safety and efficacy for these products in diagnostic or other clinical uses has not been established. In appropriate circumstances, they may be used as raw material components in further manufacturing applications.

Products listed "for *in vitro* diagnostic use" are medical devices subject to the requirements of the Code of Federal Regulations Quality System Regulation. These products may also be used for research applications, and in appropriate circumstances, as raw material components in further manufacturing applications. It is the end users responsibility to qualify these products for their specific application. They are not qualified nor are they intended for any animal or human therapeutic uses.

### Custom Cell Culture Products

We have the technical and manufacturing capabilities to produce a wide variety of customized cell culture media and reagents. Modifications to complicated engineer-to-order products, custom products are available in both standard and highly-specialized configurations. Wherever possible, we can formulate custom media with non-animal origin components and offer development engineer formulations to meet regulatory and performance goals. GIBCO® is the only brand that offers four distinct formats for (1X) liquid media, dry powder media (DPM), liquid medium concentrates (LMCs), and Advanced Granulation Technology (AGT™).

Whether you need media for cell culture or buffers for purification, submit your requests to our Custom Products Services group and production of the formulation and delivery system that best fits your needs.

### Custom Liquid Medium Concentrates

Unique features of liquid medium concentrates include improved nutrient solubility, superior correlation with theoretical nutrient stabilization.

### Advanced Granulation Technology™ (AGT™)

AGT™ is a dry form of cell culture media in a new granular format that is optimally suited to research and industrial-scale production. Applying the well-characterized pharmaceutical manufacturing technology of fluid bed granulation to cell culture media, we can produce complex formulations in an easy-to-use format.

AGT™ media are complete and pH/OSMO adjusted. The essential benefit of a complete AGT™ medium is that it provides one step and can decrease costs and time involved in raw material planning, procurement and testing. Medium preparation is also less time-consuming as the medium is complete and does not require pH/OSMO adjustment. Additionally, because the granules wet instantly for easier reconstitution, medium preparation time is reduced.

### Containers and Closures

The following flexible plastic bag packages are available for liquid media and most reagents: 1 L, 5 L, 10 L, 20 L, 100 L, and 210 L. These units have been designed for general utility and convenience, but the ability to customize these bags to meet your specific needs. More information about our line of custom packaging can be obtained through your Account Manager or by calling our Custom Packaging Department.

### Production and Preparation

#### Liquid Cell Culture Products

**Water Preparation.** The water used in liquid cell culture products is distilled water meeting all USP Monograph test requirements for Water for Injection. The system includes water pretreatment followed by distillation.

The pure distillate is collected in storage tanks for holding until distribution via a constantly recirculating loop to points of use. The system is controlled by a heat exchanger. All piping in the still, storage, and distribution systems is constructed of sanitary stainless steel. The system is controlled automatically by a microprocessor controller employing state-of-the-art sensing and fail-safe systems.

Continuous quality assurance testing for microbial bioburden, endotoxin, and Water For Injection USP monograph requirements are met.

**Addition of Chemicals.** All raw material components used in our liquid medium formulations undergo stringent quality control and purity to provide assurance that our media meet their final product quality control specifications. The biochemicals used in our formulations are USP, ACS, FCC, or other compendial grade. When no published standard is available we set internal specifications (GIBCO® grade) to ensure optimal product performance.

Chemicals of confirmed high quality are weighed accurately and confirmed using a state-of-the-art computerized weighing system. The chemicals are then solubilized in distilled water in calibrated formulation tanks. In each batch preparation, mixing is maintained to ensure homogeneity.

**Membrane Filtration.** GIBCO® cell culture media are prepared by an aseptic filling process for which each step has been validated. The production of a product meeting the industry standard sterility assurance level of  $10^{-3}$  (i.e., product that demonstrates a contamination of less than 1 of 1,000 units during the manufacturing process). The highest level of sterility assurance (equal to or greater than  $10^{-6}$  without terminal sterilization, which can be harmful to the performance of cell culture products).

Key points of control include validated sterilization cycles for all material with product contact, routine medium fills employing comprehensive environmental monitoring program, validated cleaning procedures, and a validated final filter integrity testing program. Filtration and dispensing are performed within positive pressure, HEPA-filtered, environmentally controlled rooms.

The filled containers are labeled and maintained under quarantine at their required temperatures until quality control tests are completed. The containers then meet our final quality control release specifications. Prior to release, all production records and test results undergo a final review by the Quality Assurance Team.

#### Powdered Cell Culture Products

All raw material components used in our powdered medium formulations undergo stringent quality control tests such as identity, purity, and potency to provide assurance that our media meet their final product quality control specifications. The biochemicals used in our formulations are USP, ACS, FCC, or other compendial grade. When no published standard is available we set internal specifications (GIBCO® grade) to ensure optimal product performance.

### Quality Control

#### Liquid Media

To ensure that our validated systems and controls continue to be effective, the quality of our liquid media is confirmed by test results on each production batch.

**Chemical Checks.** Osmolality and pH are measured to verify compliance with product specifications.

**Microbiological Tests.** For liquid media, the absence of bacterial and fungal contamination is confirmed using the method of the U.S. Pharmacopeia sterility test monograph. Also, products of animal origin are tested for the absence of mycoplasma using the volume inoculation method of Barile and Kern (1). For details of these tests, see Chapter 2, Animal Sera, "Microbiological Tests."

**Growth Performance and Cytotoxicity Tests.** Liquid media are tested for the absence of cytotoxicity and for growth promotion using a cell culture assay. Rapidly growing murine myeloma cell line Sp2/0-Ag14 is inoculated at approximately  $5 \times 10^4$  cells/ml and the growth is monitored relative to parallel cultures grown in standardized reference medium. Specialized culture media are tested for growth promotion compared to recognized reference standards.

**Endotoxin Tests.** Endotoxin values are measured with the Limulus Amebocyte Lysate (LAL) test. Media with the lowest level of endotoxin available today are routinely available.

**Stability Testing Program.** The expiration date shown on every *in vitro* diagnostic (IVD)-labeled product is an indication of the product's ability to deliver effective performance. Our stability program establishes and verifies product expiration dates. Product groups are monitored to determine the length of time that the product will deliver acceptable performance under recommended storage conditions.

#### Reference(s):

1. Barile, M.F. and Kern, J. (1971) *Proc. Soc. Exp. Biol. Med.* 138, 432.

#### Powdered Media

The quality of powdered media is confirmed by evaluating samples from each batch as required by specifications. Samples are tested for form, membrane filtered, and testing may include:

--Growth promotion/toxicity

-

-

-

The values for these parameters are determined using the test conditions described for liquid media. All powdered media are buffered with bicarbonate to increase stability.

#### Product Dating

Please refer to product label for expiration date of product.

#### Storage Recommendations

For sustained optimal performance, store cell culture products under the conditions recommended on the label, and minimize exposure to all light sources under both storage and usage conditions (1-4). Keep powder formulations dark and dry.

#### Certificate of Analysis

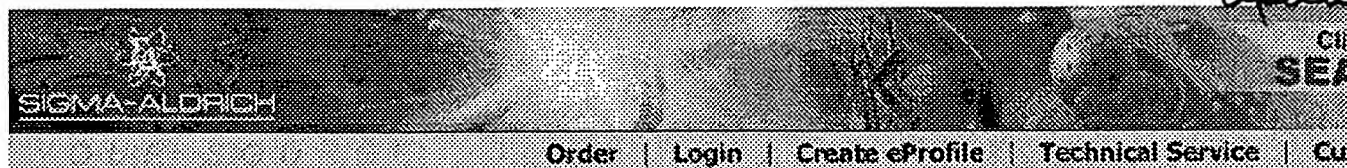
A Certificate of Analysis for all cell culture products is available upon request. This document supplements our standard label and specifications with the results of testing performed on all GIBCO® cell culture liquid media and reagents. Also provided is information on intended product use in keeping with published FDA guidelines.

1. Wang, R.J. (1976) *In Vitro* 12, 19.

2. Wang, R.J. and Nixon, B.T. (1978) *In Vitro* 14, 775.

3. Spierenburg, G.T., Oertemans, F.T.J.J., VanLaarhauen, J.P.R.M., and Debruyon, C.H.M.M. (1984) *Cancer Res.* 44, 2253.

4. Parshad, R., Taylor, W.G., Sanford, K.K., Camalier, R.F., Gantt, R., and Tarone, R.E. (1980) *Mutat. Res.* 73, 115.



Life Science

## MEDIA FORMULATIONS

Cell Culture

+ Antibody Explorer

+ Automation

Books

+ Cancer Research

+ Cell Culture

+ Product Lines

Cell Culture Workshops

+ Product Highlights

+ Key Resources

Cell Culture Capabilities

Media Formulations

IVD Media, Salts &amp; Serum

Media Expert

Tradeshows

Poster Gallery

ECACC Handbook

Media Cross Reference

Europe Media Cross Ref.

New Products

+ Cell Signaling

Custom Synthesis

Drug Discovery

+ Molecular Biology

+ Plant Biotechnology

+ Proteomics and Protein Expr.

+ Life Science Quarterly

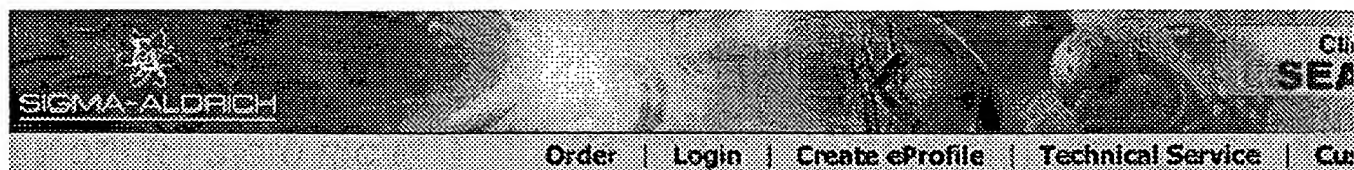
- Ames Medium
- Basal Media Eagle
- Click's Medium
- Dulbecco's Modified Eagle's Media
- Dulbecco's Modified Eagle's Medium/Ham's Nutrient Mixture F-12
- Dulbecco's Phosphate Buffered Saline
- Earle's Balanced Salts
- Glasgow Minimum Essential Media
- Grace's Insect Media
- Hanks' Balanced Salts
- Iscove's Modified Dulbecco's Media (IMDM)
- IPL-41 Insect Medium
- L-15 Media
- M2 and M16 Media
- McCoy's 5A Modified Media
- MCDB Media
- Medium 199
- Minimum Essential Medium Eagle (MEM)
- NCTC Media
- Nutrient Mixtures (HAM) F-10
- Nutrient Mixtures (HAM) F-12
- Other Salt Mixtures
- RPMI-1640 Media
- Schneider's Insect Media
- Shields and Sang M3 Insect Media
- TC-100 Insect Medium
- TNM-FH Insect Media
- Waymouth Medium MB
- William's Medium E

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## Microbiology

### Culture Media Index

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### Culture Media A-Z with Application Protocols

[A/B/C/D/E/F](#)[G/H/I/J/K/L](#)[M/N/O/P/Q/R](#)[S/T/U](#)

### Special Culture Media

- [for Molecular Biology](#)
- [Fluorescent Media](#)
- [Chromogenic Media](#)
- [Chromogenic and Fluorescent Media, Product List \(pdf 113 KB\)](#)

Please click a the linked product names to access application protocols.

### Dehydrated Media for Molecular Biology

| Fluka No. | Name                      |
|-----------|---------------------------|
| 53286     | Brain Heart Broth         |
| 70138     | Brain Heart Infusion Agar |
| 48285     | GAL Agar                  |
| 51295     | Haemophilus Medium        |
| 21614     | imMedia™ Amp Agar         |
| 28202     | imMedia™ Amp Blue         |
| 28207     | imMedia™ Amp Liquid       |
| 21601     | imMedia™ Kan Agar         |
| 28236     | imMedia™ Kan Blue         |
| 17986     | imMedia™ Kan Liquid       |
| 22293     | imMedia™ Zeo Agar         |
| 21608     | imMedia™ Zeo Liquid       |
| 61420     | Lambda Medium             |

|       |  |
|-------|--|
| 61746 | LB Agar  |
| 61748 | LB Broth   |
| 61731 | LB-Top Agar  |
| 62655 | L-Top Agar   |
| 63011 | M9 Broth   |
| 63012 | M9CA Broth   |
| 70143 | Mac Conkey Agar No 1   |
| 70144 | Mac Conkey Broth   |
| 74713 | NZCYM Broth  |
| 74724 | NZM Broth  |
| 74725 | NZYM Broth   |
| 84090 | Saccharomyces Medium   |
| 85465 | SM Broth   |
| 85468 | SOB Broth  |
| 85469 | SOC Broth  |
| 85883 | Streptomyces Medium  |
| 86199 | Superbroth   |
| 86201 | Superbroth Agar  |
| 86347 | TB Agar  |
| 86349 | TCMG Agar  |
| 86494 | Terrific Broth, modified                                     |
| 51483 | Yeast Nitrogen Base  |
| 51484 | Yeast Nitrogen Base without amino acids                      |
| 51485 | Yeast Nitrogen Base without amino acids and ammonium sulfate |
| 95767 | YM Agar  |
| 95759 | YM Broth   |
| 95761 | YPAD Agar  |
| 95762 | YPD Agar   |
| 95763 | YPD Broth  |
| 95764 | YPDG Agar  |
| 95766 | YPG Agar   |
| 95768 | YT Agar  |
| 95769 | YT Broth   |

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### Fluorescent Media

Culture media for the simple and fast detection of *E. coli* using the fluorescence. The presence of *E. coli* results in fluorescence in the UV. A positive indole test provides confirmation.  $\beta$ -D-glucuronidase, which is produced by *E. coli*, converts 4-Methylumbelliferyl- $\beta$ -D-glucuronide to 4-methylumbelliferone and glucuronic acid. The fluorophore 4-methylumbelliferone is detected under a long wavelength UV lamp.